



REPLACEMENT SPECIFICATION



DESCRIPTION OF THE ILLUSTRATED EMBODIMENT

2

3 Figure 1 represents a key-surround module or nesting module embodying
4 principles of the present invention. It is shown from a top plan view to have a middle key
5 1 at its focus and an optional, in this case circular, bordering wall 5 which here separates
6 the middle key from its most adjacent key-surround key 2. In other embodiments, the
7 key-surrounding need not be concentric nor circular nor completely surround the middle
8 key. The bordering wall need not be present if the key parts which comprise the key-
9 surround module are shaped and held into place by their actuating constructs as will be
10 discussed below. Dotted line 3 and all other such lines of this key-surround module
11 illustration represent either a dividing line between key parts or a dividing line between
12 zones of actuating constructs depending upon the embodiment. Space 4 may therefore
13 represent a key part in a key-arrangement key-surround or an area of multiple actuating
14 constructs in a floating pivotable key-surround key.

15 Figure 2 represents a key-surround module which has key-values, in this case, of
16 characters from a conventional Qwerty keyboard. The Key-Surround Module inputting
17 device is not intended to be limited to a Qwerty keyboard embodiment whereas there are
18 other embodiments such as Stenographic TM keyboards, musical keyboards and other
19 inputting devices for other equipment which contain inputting values which can be
20 inputted by the key-surround module inputting device. In the case of Figure 2, however,
21 middle key 6 has the key-value for "J", with a key-surround key having the values, for
22 keys numbered 7 through 11, for "U", "Y", "H", "N", and "M" respectively. Whereas
23 this figure depicts a top view, these key-values may be for parts of a key-arrangement

1 key-surround key as well as for areas of multiple actuating constructs of a floating
2 pivotable key-surround key. Depending on the embodiment, line 12 and dotted lines as
3 15 will represent spaces between key parts or dividing borders between inputting areas.
4 Line 16 may also represent the edge of a key-arrangement key or demarcation of different
5 contact areas of a floating pivotable embodiment. 13 and 14 represent key parts or areas
6 which are free to carry any key-value which is suitable for convenience and for the
7 saving of inputting space.

8 Figures 3a, 3b and 3c represent several possible varieties of key-surround
9 inputting devices. Figure 31 illustrates a key-arrangement key-surround module where
10 top and bottom actuating constructs 18 and 19 are held apart by the flexible exterior 17.
11 Dotted lines such as that of 20 here illustrate connections of such flexible material. Top
12 actuating part 18 is attached to the inside top of the key-surround key at 23 and actuating
13 construct bottom is secured to the base of the key-surround key. Signal is made once the
14 exterior above the appropriate actuating construct, in this case at 23, is pressed.
15 Actuating constructs may be either, in this case, capacitive or hard-contact. The signal
16 circuitry is illustrated as 24 along the circumference and perpendicular to the
17 circumference toward the center of the key-surround key. Middle key 21 has one
18 actuating construct beneath it at 22. Washer 25 is attached to the bottom of the key-
19 surround module having a protrusion 26 which fits into groove 28 of base 27. The
20 groove allows a limited rotation of the key-surround key in relation to the middle key.

21 Figure 3b also illustrates a key-arrangement key-surround key as Figure 3a,
22 however with some differences. Middle key 29 with actuating construct 31, either
23 capacitive or hard-contact, nests within key-arrangement key surround 30. Perpendicular

1 lines such as that of line 32 illustrate the divisions between the key tops of the key parts
2 which form the key-arrangement key-surround key. These divisions need not be limited
3 to being perpendicular with respect to the circumference of the key-surround key as will
4 be discussed below. Key 33 has beneath it one actuating construct 34 which can be either
5 capacitive or hard-contact. This key-arrangement key-surround key need not have any
6 dividers between its individual inputting parts for its shape and its actuating construct 34
7 keep it in place and keep it from interfering with the other key parts of the key-surround
8 key. It is however possible to have a wall 35 as in this case. Signals are carried through
9 circuits like that of 35, toward the center of the key-surround key. Washer 37 connected
10 to the bottom of key-surround module 30 with protrusion 38 fits into groove 40 of base
11 39, and, thereby allows limited rotation of key-surround key 30.

12 Figure 3c illustrates a key-surround inputting device embodiment which in this
13 case has a trackball cursor navigating device as its middle key surrounded by a floating
14 pivotable key-surround key. Trackball 41 with actuating constructs at 49 are in this case
15 encircled by floating pivotable key-surround key 42 having flexible tubular material at its
16 center which allows a springing action when the key-surround key is pressed and
17 released. It is possible in another embodiment to replace said trackball with other forms
18 of cursor or pointer navigating devices, here and throughout the specification. A similar
19 flexible tubular material 46 covers the exterior sides of the key-surround key and also
20 enables a springing action after the key-surround key is pressed. When the key-surround
21 is pressed, nodes places under the top of key-surround key 42 and along the
22 circumference of the key-surround key like that of 47 come into contact with actuating
23 constructs like that of 48 causing a signal to be made. Said actuating constructs can be

1 capacitive or hard-contact and are secured to the bottom 51 of the key-surround key.
2 Washer 52 attached to bottom of the key-surround module has a protrusion 53 which fits
3 into groove 55 on base washer 54 thereby permitting limited rotation of the key-surround
4 key. Dotted lines such as that of 43 and spaces between such lines on the surface of the
5 key-surround key such as 44 illustrate an area where groups of nodes and their
6 corresponding actuating constructs may carry the same key-value thereby increasing the
7 likelihood of the user inputting the key-value and also extending the area upon which the
8 user can perform the inputting task. Signal carriers such as that of 50 transport signals
9 along bottom 51 towards the center of the key-surround key.

10 Figure 4 illustrates a key-surround module inputting device 56 having a middle
11 key 57, and a plurality of key surrounds 58 and 60. Key-surround 58 is a key-
12 arrangement key-surround key of, in this case, four inputting parts. Key-surround 58 is
13 curved at its top and protrudes in its nesting position inside key-surround 60 so that it can
14 be better distinguished by the user's tactile sense. The key-surround module inputting
15 device is not limited to these key shapes and heights. Any given key-surround key may
16 have its keys at any combination of heights, shapes and textures in order to distinguish
17 them from other keys and to facilitate inputting. Dotted line 59 illustrates that the
18 divisions between key parts need not be solely perpendicular to the circumferences of
19 their respective key-surround key. Rather they can form any shape which in order to
20 facilitate inputting and to create distinguishable inputting key parts in the case of the key-
21 arrangement key-surround keys or areas of a floating pivotable key-surround key. In this
22 case the divisions create a spiral pattern from the inner circumference of key-arrangement

1 key-surround key. Key-surround 60 is a floating pivotable key-surround key similar to
2 that in Figure 3c. It has a flexible accordion-like side surface.

3 Key-surround inputting device 56 is held in track 61 by its central peg 63 and peg
4 support 64. Said peg is attached to the center of the base of the key-surround inputting
5 device and to said peg support 64. Said peg support is wider than the width of said track
6 and thereby is held securely in said track. Said peg support travels on sub-track 65 which
7 is as long as track 61. Said sub-track has a parallel space 66 below track 61 such that said
8 peg support fits tightly within said parallel space. The track can be in any manner of
9 shapes, lengths and sizes depending on the desired path of the key-surround inputting
10 device.

11 Figure 5 illustrates a key-surround inputting device having a middle key-67, a
12 first key-surround key 69, a second key-surround key 71 and a third key-surround key 73.
13 In between said keys are divisions or spaces 68, 70 and 72. These key-surround keys
14 may be any combination of key-arrangement or floating pivotable key surround keys.
15 The third key-surround is slightly extended at area 74 do that it may be easily accessed by
16 the user. This illustrates that the key-surround key need not be uniform throughout and
17 may be amorphous in shape as well as not necessarily be concentric with the other key-
18 surround keys or middle keys.

19 Figure 6 illustrates an embodiment of the key-surround inputting device according
20 to the present having a plurality of middle keys each having a plurality of key-surround
21 keys forming a series of nesting modules 75, 76, 77, 78, 79, 80, 81 and 82. Figure six is
22 divided into two parts at dotted line 86a. To the right of line 86 what is depicted is the
23 top view of the right half of the embodiment. To the left of line 86, what is depicted is

1 the top view of the left half of the embodiment with the key tops removed to reveal
2 actuating constructs and their bases.

3 Key surround 79 has at its focal point middle key 89 completely surrounded by
4 the first key-surround key 90 which is in this case circular. These keys are in turn
5 surrounded in part by key-surround 91 which is amorphously shaped, which is in turn
6 surrounded in part by key-surround 92. Adjacent key-surround module 80 has a middle
7 key 93 surrounded completely by key-surround key 94, oval in shape. These keys are
8 surrounded in part by crescent shaped key surround key 95, in turn surrounded in part by
9 key-surround key 96. Key-surround module or nesting module 81 is of the same
10 structure as key-surround module 80, having middle key 97, first key-surround key 98,
11 second key-surround key 99 and third key-surround key 100. Key-surround module 82
12 has a middle key 102 and first key-surround key 103 similar to middle key 89 and key-
13 surround key 90, respectively. Key-surround key 104 is amorphous and surrounds in part
14 key-surround key 103. This key-surround has an extension at area 105. Third key-
15 surround key 101 surrounds in part key-surround key 103.

16 To the left of line 86a is the left half of this embodiment of the key-surround
17 inputting device revealing actuating constructs and their placements which are beneath
18 the key tops of key surround modules 75, 76, 77 and 78. Key-surround module 75, has at
19 its middle key interior base 108 and actuating construct 109 at its center. This actuating
20 construct may either be a capacitive or an hard-contact actuating construct. Surrounding
21 this middle key actuating construct is the interior base 110 of a floating pivotable key-
22 surround key having a flexible tubular stricture at 113 and a plurality of actuating
23 constructs such as 111 in groups of four actuating constructs, connected by circuits such

1 as 112. In this configuration these groups of actuating constructs hold the same key-
2 values and serve to extend the area where inputting may be achieved on the outer
3 circumference of the floating pivotable key-surround key. Dividing lines such as that at
4 114 mark the divisions of said common key-value inputting. Said actuating constructs
5 may be either hard-contact or capacitive. Attached to said base 110 is flexible tubular
6 material 110a which allows for the springing back of the floating pivotable key-surround
7 key after it is pressed by the user at any point. Key-surround base 115 contains actuating
8 constructs such as 116 for a key-arrangement key-surround key. Actuating constructs are
9 separated into groups of actuating constructs for arranged keys at demarcation lines
10 similar to that of 119. Amorphous key base 117 extends the key-arrangement key-
11 surround key and contains a series of actuating constructs such as that of 118.

12 Actuating construct 124 is fixed at the base of the middle key of module 76.
13 Floating pivotable key-surround key base 125 contains two actuating constructs 123 and
14 126. Also part of this key base is a flexible tubular part 127 which allows the key to
15 more efficiently spring back after it has been pressed by the user. In this case it is not
16 necessary to have an exterior flexible tubular material such as 110a in module 75,
17 whereas the springing action of the flexible tubular part 127 and that of the actuating
18 constructs 123 and 126 are sufficient. The base of the second key-surround 120 contains
19 a single actuating construct 124 which may also be hard-contact or capacitive. Module
20 77 is of identical structures as those of module 76. Key-surround module 78 has a middle
21 key base 129 is very similar to that of 110 of module 75. Key-surrounds 130a and 130b
22 are secondary and tertiary key-surround key bases and each contain a plurality of hard-
23 contact or capacitive keys for, in this case, key-arrangement key-surround keys. Both

1 halves of the illustration of the key-surround inputting device embodiment of Figure 6 fit
2 into one another at point 131.

3 Key surround key modules 75, 76, 77, 78, 79, 80, 81 and 82 have one or more
4 key-surround keys. In this depicted embodiment there are a plurality of such key-
5 surround module inputting devices which in turn form another key-surround inputting
6 device. These key-surround module inputting devices are arranged in this case in a
7 concave curved arrangement such that middle keys coincide with the curvature of the
8 users finger tips at rest for grater comfort. In other embodiments thee keys may be
9 aligned without said curved arrangement, with differing numbers of key-surround keys
10 and having various shapes.

11 Below the four key-surround modules 79, 80, 81 and 82, in this case is one oval
12 key module 88. Key module 88 is of the same interior structure as that of key-module 86
13 in this case also oval in shape and placed beneath nesting modules 78 and 79. Said key
14 module 86 has a plurality of actuating constructs such as 87 which allow the user to press
15 ay part of said key module in order to input the same value, It is possible also to place
16 more than one key-value to these actuating constructs which can either be capacitive or
17 hard-contact constructs. In this case beneath key-modules 75, 76, 77 and 78 these is
18 another nesting module 83 having trackball base with cursor navigating device actuating
19 constructs 85 and in this case two circular nesting key-surround keys 83a and 83b. The
20 surface of the inputting device 106 is in this case flat but may be of varying heights above
21 surface 106, of various inclines and of varying textures to facilitate the user's reach and
22 touch identification.

1 Figure 7 illustrates an embodiment of the key-surround inputting device according
2 to the present invention having a plurality of key-surround modules 132 and 133, each
3 having a plurality of middle keys. Figure 7 is divided into two parts at dotted line 141.
4 To the right of line 141, Figure 7 depicts top view of the right half of the embodiment.
5 To the left of line 141, Figure 7 depicts the top view of the left side of the embodiment
6 with the key tops removed to reveal actuating constricts and their bases.

7 To the right of said line 141, middle keys 134, 135, 136 and 137 serve as a
8 plurality of middle keys of the key-surround module 133. Said plurality of middle keys is
9 surrounded by a first key-surround key 138 which is in turn surrounded in part by a
10 second key-surround key 139, and, which is in turn surrounded by a third key-surround
11 key 140. It is not necessary in other embodiments to have this particular number of
12 middle keys or key-surround keys or even said number of key-surround inputting
13 modules. Said plurality of middle keys, in this case are aligned in a concave curvature on
14 the surface of the inputting device with said key-surround keys accommodating such
15 shape. Dotted lines within the module such as 142 are lines of demarcation representing
16 spaces between keys in certain embodiments or borders between areas of different key-
17 value inputting in others. At such lines it is possible to have separated keys, borders
18 between keys or continuous surfaces with actuating construct beneath which change in
19 key-values at lines such as 141 (See Figures 3a to 3b). In such embodiments where such
20 lines represent physical separations of keys, the key-surround module may be separated
21 at such lines and moved on the surface 144 of the inputting device with an underlying
22 system of tracks as in Figure 8, discussed below. Beneath said inputting device module
23 133 is a key module 134 here oval in shape.

1 First key-surround key base 154 is a key base for a combination key-arrangement
2 and floating pivotable key-surround key. Thus, said first key-surround base contains the
3 actuating constructs for key-arrangement key-surround keys and floating pivotable key-
4 surround keys. This key-surround contains a plurality of actuating constructs, either
5 capacitive or hard-contact. The arrangement keys consist of floating pivotable key-
6 surround key parts 148 and 155 at both ends of the key-surround key where they partially
7 surround middle key bases of middle keys 138 and 147, respectively. Key-surround base
8 148 is that of a pivotable key-surround floating which partially surrounds the middle key
9 of which base key 138 is associated. Key-surround base 148 contains a plurality of
10 actuating constructs such as that of 149 in groups connected by circuitry such as 150,
11 and, key-surround base 155 contains a plurality of actuating constructs such as that of
12 156 in groups connected by circuitry 157. Said actuating constructs can be either hard-
13 contact or capacitive. Such groups of actuating constructs share the same key-value and
14 expand the area on such a key-surround inputting device where the user can input a
15 certain key-value. A flexible part-tubular wall 151 surrounds the base for the floating
16 pivotable key part extending around part of middle key area associated to middle key
17 actuating construct 147 and extends around the entire base 155. The rest of the key bases
18 such as 160 on this key-surround key 154 are those for key-arrangement keys
19 surrounding in this case, four middle keys and connecting the floating pivotable areas 148
20 and 155. Lines of demarcation such as that of 159 designate where keys are separated by
21 spaces or border walls separating each key base that has actuating constructs with
22 different key-values. In other embodiments where the key-tops are continuous (See

1 Figure 3a) these lines merely designate where such actuating constructs have different
2 key-values.

3 The second key-surround key base 161 is a base with actuating constructs for a
4 combination key-arrangement and floating pivotable surround key. Actuating constructs
5 such as that of 167 of base 162 surround and in this case particularly surround key-
6 surround base area 148. Circuit 169 connects all actuating constructs so that in this case
7 each actuating construct of base 162 will signal the same key-value. Base 162 is further
8 divided into bases for key arrangement key-surrounds having groups, in this case of two,
9 four or three actuating constructs, each group having the same key value. The third key-
10 surround base 163 of module 132 is a base for a key-arrangement key surround key
11 having actuating constructs and partially surrounding said second key surround 161. All
12 said actuating constructs being either hard-contact or capacitive.

13 Below key-surround module 132 there is in this case a nesting module 164 having
14 a trackball cursor navigating device actuating constructs 166 and in this case two circular
15 key-surround keys 82a and 82b. The surface of the inputting device 144 is in this case
16 flat but may be shaped to allow better access to keys and more comfortable inputting.
17 Oval key module 170 is centered below key-surround inputting modules 132 and 133
18 illustrated in part with key top and part without with underlying base part having a
19 plurality of disbursed actuating constructs such as 172 which can be either capacitive or
20 hard contact constructs. Oval key module 170 may also have a flexible tubular wall 171
21 which surrounds the entire key module in order to ameliorate the springing movement of
22 the key module after it is stricken by the user. Key module 143 is of the same interior
23 structure as that of key module 170 and shares similar structure. Actuating constructs

1 such as that of 172 may have the inputting circuitry for the same key value so that the
2 user may press any part of said key module in order to input the same value. It is
3 possible also to place more than one key-value to these actuating constructs which can
4 either be capacitive or hard-contact constructs. All said keys may be of varying heights
5 above surface 144, of various inclines and of varying textures to facilitate the user's reach
6 and tactile identification. Additionally, key-surround modules 132 and 133 are made to
7 fit into such as points similar to 173 in order to save space and better accommodate the
8 user. In certain embodiments key-surround modules have dual washers beneath the base
9 levels discussed above by which certain or all key-surround keys may be rotated with
10 respect to other keys such as middle keys or other key-surround keys. Such washers such
11 as those depicted in Figure 3a, 25 and 27, Figure 3b, 36 and 39 and Figure 3c 52 and 54
12 are attached beneath the relevant key-surround bases described above. In other
13 embodiments the number of keys, key shapes and placements of the key-surround
14 inputting device will vary.

15 Figure 8 illustrates a system of tracks which is beneath the surface of the key-
16 surround module inputting device, and specifically, beneath key-surround inputting
17 device bases described above. Track surface 174 in this embodiment is divided into three
18 groupings of eleven tracks: 175, 176, 177, 178 and 179 of the left grouping 180, 181,
19 182, 183, 184 and 185 of the right grouping 186 with track 187 as the center grouping.
20 Each of these tracks holds one nesting or key module.

21 Tracks 175, 176, 177, 178 and 179 of grouping 180 hold pegs 188, 189, 190, 191
22 and 192 respectively. Each said peg, identical to that of Figure 4, 63, connects key-
23 surround module bases represented as 197, 198, 199, 200 and 201 to peg supports. Peg

1 supports 202, 203, 204, 205 and 206 slide tightly against the back of surface 174 with
2 said pegs in tracks in order to anchor the pegs such that the key or nesting modules
3 attached to said pegs are secured against the key-surround inputting device.

4 Tracks 181, 182, 183, 184 and 185 of grouping 186 hold pegs 192, 193, 194, 195
5 and 196 respectively. Each said peg, identical to that of Figure 4, 63, connects key-
6 surround module bases represented as 207, 208, 209, 210 and 211. Peg supports 212,
7 213, 214, 215 and 216 slide tightly against the back of surface 174 with said pegs in
8 tracks and anchor the pegs such that the key or nesting modules attached to said pegs are
9 secured against the key-surround inputting device. In this case track 179 holds the
10 nesting module having trackball and two nesting key-surround keys depicted as 218. The
11 central track 187 holds peg 218 connecting base 220 to peg support 221 for in this case
12 the oval key module.

13 Figure 9 is a top view illustration of a conventional Qwerty inputting device
14 having keys with key-values placed in the “Qwerty” scheme of key-value placement.
15 This is a conventional Qwerty keyboard with regard to the key placement relationships of
16 keys depicted with key-values. Keys without values such as 223, 224 and 225 can on
17 different Qwerty keyboards have different key-values and Figure 9 illustrates these key-
18 values as the minimum of Qwerty key-values. Key 226 represents the “Space” bar or
19 key. Key-values of this keyboard may be inputted by the key-surround module inputting
20 device whilst maintaining the positioning and the relationship among and between key-
21 values. The keys of the Qwerty keyboard are included within this specification not to
22 limit the applicability of the Key-Surround Module inputting device. Rather, it is offered

1 to suggest an applicability of certain embodiments of the Key-Surround Module inputting
2 device.

3 Figure 10 illustrates a display screen having touch screen sensing elements and, in
4 the alternative, a display screen which is covered by a touch screen.

5 In illustrating a display screen having built-in touch sensing elements, Figure 10
6 is divided into two halves separated at dotted line 238. The illustration to the right of line
7 238 is a display of an embodiment of the key-surround inputting device as it would be
8 seen by the user. To the left of line 238 is an illustration of the key-surround inputting
9 device display screen which depicts touch sensing elements which in one embodiment are
10 built into the display regions. Touch sensing elements are disproportionately enlarged to
11 show detail.

12 Looking at the right of line 238 of the display, key-surround modules 231, 232,
13 233 and 234 are seen depicted with middle keys 238, 239, 240 and 241 in a concave
14 curved alignment. This curvature is unique to this particular embodiment and need not
15 be present in others. Middle key 238 is displayed nested within a circular concentric first
16 key-surround 242, a second key-surround 243 is amorhously shaped and partially
17 surrounds said first surround key. Third key surround 244 is displayed to surround said
18 second key-surround key together depicting the key-surround module 231. The key-
19 surrounds and the middle key, as with other keys in this embodiment, need not be circular
20 nor concentric. Adjacent key-surround module 232 has middle key 239, oval shaped first
21 key-surround 245 which surrounds, however only in part, said first key-surround key.
22 Third key-surround key 247 is displayed to partly surround said second key-surround
23 key. Key-surround module 233 is depicted to have a middle key 240, oval shaped first

1 key-surround key 248 which surrounds said middle key, crescent shaped second key
2 surround 249 which in turn surrounds, however only in part, said second key-surround
3 key. The second and third key-surround keys are not concentrically depicted with regard
4 to said middle key. Key surround 234 is depicted to have a circular middle key 241
5 nested within a circular key surround first key-surround key. A second amorphous key-
6 surround key 252 is depicted to partially surround said first key-surround key. Centered
7 below these four displayed key-surround modules 231, 232, 233 and 234 is displayed
8 oval key module 237. Background 254 is displayed to surround all said displayed keys.

9 On the left of dotted line 238 of Figure 10 this display embodiment is shown to
10 have embedded touch sensing elements within its display screen at each of the key
11 depictions of said display inputting device. Touch sensing elements are conductive
12 circuit elements and are embedded within the display panel in this particular
13 embodiment. The display may be of a liquid crystal display or other conductive yet
14 illuminated display. Touch sensing elements are best represented in drawing as
15 perpendicularly overlapping circuitry for example in area 284, however, parallel lines are
16 also used to illustrate such circuitry for clarity.

17 Key-surround module 227 is displayed with circular middle key 255. Said middle
18 key has one circular area of circuit elements for the detection of touch. The first key-
19 surround key which surrounds middle key 255 has six divisions 258, 260, 261, 262, 263
20 and 264. This key-surround key is surrounded by amorphous second key-surround key
21 265 with, in this case, five areas of circuit embeddedness. This in turn partly surrounded
22 by third key-surround key 266 divided into two areas of touch circuitry. The adjacent
23 key-surround module 228 has a middle key display entirely dispersed with touch circuits.

1 Said middle key is surrounded by first key-surround key that has two areas 267 and 267a
2 which are separately embedded with touch sensing circuits. Said middle key is
3 surrounded by first key-surround key that has two areas 267 and 267a which are
4 separately embedded with touch sensing circuits. Second key-surround key 268 is
5 embedded with one area of circuits and is displayed as partly surrounding first key-
6 surround key. Third key-surround key 269 partly surrounds 268 is also entirely
7 embedded with one area of touch circuits. Next adjacent key-surround key 299 has a
8 circular middle key the whole of which is embedded with one touch circuit area. This
9 middle key is completely surrounded by an oval display first key-surround key which has
10 two areas of circuitry embeddedness 270 and 270a, such that two key-values may be
11 detected in these two areas of the same key-surround key. The second key-surround key
12 271 partially surrounds said first key-surround key and is embedded with one area of
13 circuitry. Third key-surround key 271 partially surrounds said second key-surround key,
14 and is likewise completely embedded with one area of touch sensing circuitry. Key-
15 surround module 230 has a display middle key 258 which consists of one circular area of
16 touch circuitry. This middle key is surrounded by a first circular area key-surround key
17 with several different areas of embedded touch circuits 273, 274, 275, 276 and 277 where
18 each separate detection area olds a different key-value, The second key-surround key
19 278 of this display module partially surrounds said first key-surround and has two
20 separate areas of circuitry embeddedness. Third touch key-surround key 279 is also
21 divided into two areas of touch circuitry.

22 Below said four touch key-surround molecules 227, 228, 229, 230 is displayed a
23 touch nesting module 235 with a circular display cursor navigating center 280 having

1 touch circuitry which can detect movements of touch or changing positions of touch.
2 This middle key is surrounded by first touch circular key-surround key 281 having four
3 areas of touch circuitry, in turn completely surrounded by a second touch key-surround
4 key having five areas of touch circuitry. Displayed beneath and centered between key-
5 surround modules 230 and 231 is an oval area 236 having one area of touch sensing
6 circuitry. Displayed beneath and centered between key-surround modules 230 and 231 is
7 an oval area 236 having one area of touch sensing circuitry. Background 283 can be
8 without any touch circuitry, may have circuitry which has a very low touch sensitivity, or
9 it may have higher touch sensitivity possibly to alert the user if she is inputting out of key
10 bounds.

11 Said touch key shapes are unique to this particular embodiment and may be varied
12 in other embodiments. For example some keys which are described as circular may be of
13 other shapes. Also, borders of touch keys are outlined to show boundaries of display
14 keys however they need not be used in their embodiments, for example different areas of
15 key sensitivity may be in different colors or brightness in juxtaposition to other touch key
16 areas. And whereas a plurality of key-surround key has been described in this
17 embodiment of the key-surround module inputting device, another embodiment of the
18 inputting device may have only one key module. Also the number of key-surrounds need
19 not be as high nor be limited in number as those described in this embodiment.

20 Secondly, the area to the left of dotted line 238 may also be described as being
21 solely a touch screen layer with display shapes illuminating through and highlighting
22 touch sensitive circuitry. With such an interpretation, Figure 10 also serves as an
23 illustration of two parts of a touch screen display system illustrating the display screen in

1 half of the illustration to the right of dotted line 238, and the rest of same display screen,
2 the left half covered by a separate touch screen area having touch circuitry. Thus, a
3 second such embodiment may be described having a touch screen which covers a
4 separate display underneath.

5 Figure 11 is divided into two halves separated at dotted line 287 illustrating a
6 display screen having built-in touch sensing elements. The illustration to the
7 right of line 287 is a display embodiment of the key-surround inputting device as it
8 would be seen by the user. To the left of line 287 is an illustration of the key-surround
9 inputting device display screen which depicts touch sensing elements which are built into
10 the display regions or areas. The touch sensing elements are enlarged to show detail.

11 Looking at the right of line 287 of the display, key-surround modules 286 is
12 depicted with middle keys 292, 293, 294 and 295 in concave curved alignment. This
13 curvature is unique to this particular embodiment and said keys may be of different
14 alignment in other embodiments. Also, in other embodiments this number of middle
15 keys and the number of key-surround modules can differ. Surrounding these middle keys
16 is a key-surround key 296 which follows the curvature of said middle keys and entirely
17 surrounds them. This first key-surround display key is surrounded in part by a second
18 key-surround key 297 and is depicted to partially surround said first key-surround key. A
19 third key-surround key 298 partially surrounds said second key-surround key. Below this
20 display key-surround module 286 is, in this case, an oval display key module 299 and
21 surrounding these modules is background 300.

22 To the left of line 287 the illustration shows the touch sensing circuitry as it
23 embeds display key areas of the present embodiment of the touch key-surround module

inputting device. With regard to the depiction of key-surround module 285, depicted middle key areas 288, 289, 390 and 291 are completely embedded with single circular areas of touch circuitry. These keys are surrounded by a first touch key-surround key which has a plurality of spaces which are separately embedded with touch sensing elements. Second display key-surround 302 surrounds said first key-surround key and has a plurality in this case six area of touch sensing elements to that each area may be given a different touch key-value. The third touch key-surround key 303 surrounds partially said second display key-surround key. In between said middle keys are three display areas 304, 304a and 304b which like background 311 can be of either low touch sensitivity or high touch sensitivity depending on the benefit to the user. Below said touch module 285 is nesting module 305 which has as its middle key a cursor navigating touch key 306 having a circular area of touch sensing circuitry which can detect movement of the user's touch or changes in placement of touch. This middle key has a first key-surround key 307 which is circular and has four areas of touch circuitry. A second display key-surround key is divided into five areas of touch sensitive circuitry and which surrounds said first key-surround key completely. Below and centered between display modules 285 and 286 is depicted touch key module 309 having one area which is embedded with one area of touch sensing circuitry.

Said touch key shapes are unique to this particular embodiment and may be varied in other embodiments. Keys in other embodiments may be of different shapes than those displayed. The illustrated borders of touch key are outlined to show boundaries of keys however they need not be used in other embodiments, for example different areas of key sensitivity may be in different colors or brightnesses in juxtaposition to other touch key

1 areas. And whereas a plurality of keys-surround keys has been described in this
2 embodiment of the key-surround module inputting device, another embodiment of the
3 inputting divide may have only one key module. Also the number of key-surrounds need
4 not be as many nor be limited in number as those described in this embodiment.

5 Secondly, the area to the left of dotted line 287 may also be described as being
6 solely a touch screen layer with display shapes illuminating through and highlighting
7 touch sensitive circuitry. With such interpretation, Figure 11 also serves as an illustration
8 of two parts of a touch screen display system illustrating the display screen in half of the
9 illustration to the right of dotted line 287, and the rest of same display screen, that which
10 is to the left, covered by a separate touch screen having touch circuitry. Thus, a second
11 such embodiment may be described having a touch screen which covers a separate
12 display underneath.

13 Figure 12 illustrates a top view of several embodiments discussed herein of the
14 key-surround module inputting device which applies may apply to various embodiments
15 of either a three-dimensional or a two-dimensional key-surround module inputting
16 device.

17 In terms of a three-dimensional inputting device, Figure 12 depicts a top view
18 which has applicability to various embodiments of the key-surround module inputting
19 device. The key-surround module inputting device of Figure 12 contains key-values of
20 the conventional Qwerty keyboard placed so that Qwerty key relationships and positions
21 are maintained while such key-values and inputting can be achieved on the smaller
22 surface area of the key-surround module inputting device. Key-surround module 312 has
23 the key-value for “A” at its middle key and all Qwerty key values which are associated to

1 inputting from said key-value of “A” as rest-position key key-value. Key surround
2 module 313 has the key-value for “S” as its middle key and all Qwerty key-values which
3 are associated to inputting from said key-value of “S” at rest-position key key-value.
4 Key surround module 314 has the key-value for “D” at its middle key and all Qwerty
5 key-values which are associated to inputting from said key-value of “D” as rest-position
6 key key-value. Key surround module 315 has the key-value for “F” at its middle key and
7 all Qwerty key-values which are associated to inputting from said key-value of “F” as
8 rest-position key key-value. Key surround module 316 has the key-value for “J” at its
9 middle key and all Qwerty key-values which are associated to inputting from said key-
10 value of “J” as rest-position key key-value. Key surround module 317 has the key-value
11 for “K” at its middle key and all Qwerty key-values which are associated to inputting
12 from said key-value of “K” as rest-position key key-value. Key surround module 318
13 has the key-value for “L” at its middle key and all Qwerty key-values which are
14 associated to inputting from said key-value of “L” as rest-position key key-value. . Key
15 surround module 319 has the key-value for “:;” at its middle key and all Qwerty key-
16 values which are associated to inputting from said key-value of “:;” as rest-position key
17 key-value. Key-module 322 has the key-value for “Space”, also a frequently inputted
18 Qwerty key-value, placed for easy reach by the user. It is possible in another
19 embodiment to include such enlarged key modules with key-values such as for “Esc”,
20 “Backspace”. “Shift”, “Alt”, “Ctrl” or other frequently used key-values in easily
21 accessible locations on the key-surround module inputting device. Nesting module 322
22 has the key-value for a cursor navigating device at its center and other directional and
23 click key-values at its surround keys for related and easy access for the user. This

1 embodiment of the key-surround inputting device is only one embodiment of keyboard
2 key-surround module inputting. Other embodiments of the key surround inputting device
3 may include Stenograph™ key key-values and musical instrument key key-values.

4 In terms of a two-dimensional inputting device, Figure 12 illustrates the frontal
5 view to the user of a touch display key-surround module inputting device having
6 conventional Qwerty keyboard key-values, and having the same qualities as described for
7 a three-dimensional embodiment.

8 Figure 13, in terms of a three-dimensional inputting device, illustrates a top view
9 and has applicability to various embodiments of the key-surround module inputting
10 device. The key-surround module inputting device of Figure 13 contains key-values of
11 the conventional Qwerty keyboard placed so that Qwerty key relationships and positions
12 are maintained while such key-values and inputting can be achieved on a smaller surface
13 area. Key-surround module 323 contains a plurality of rest-position keys such as “A”,
14 “S”, “D”, and “F” with Qwerty key-values at its surround keys which are inputted from
15 said middle key key-values on the conventional Qwerty keyboard. Key-surround
16 module 323 contains a plurality of rest-position keys such as “J”, “K”, “L”, and “;:” with
17 Qwerty key-values at its surround keys which are inputted from said middle key key-
18 values on the conventional Qwerty keyboard. Key module 325 has the key-value for
19 “Enter”, a frequently inputted Qwerty key-value, so placed for easy reach by the user in
20 this embodiment. Key-module 326 has the key-value for “Space”, a frequently inputted
21 Qwerty key value, also placed for easy reach by the user. It is possible in another
22 embodiment to include such enlarged key modules with key-values for “Esc”,
23 “Backspace”, Shift”, Alt”, “Ctrl” or other frequently used key-values in easily accessible

1 locations on the key-surround module inputting device. Nesting module 327 has the key-
2 value for a cursor navigating device at its center and other directional and right click key-
3 values at its surround keys for related and easy access for the user. This embodiment of
4 the key-surround inputting device is only one embodiment of keyboard key-surround
5 module inputting. Other embodiments of the key-surround inputting device may include
6 Stenograph™ key values and musical instrument key key-values.

7 In terms of a two-dimensional inputting device, Figure 13 illustrates the frontal
8 view to the user of a touch display key-surround module inputting device having
9 conventional Qwerty keyboard key-values, with the same qualities as described for a
10 three-dimensional embodiment.

11 It will be understood that each of the elements described above, or two or more
12 together, may also find a useful application in other types of constructions differing from
13 the types described above. And while the invention has been described and illustrated as
14 embodies in inputting devices, it is not intended to be limited to the details shown, since
15 various modifications and structural changes may be made without departing in any way
16 from the spirit of the present invention.

17 Without further analysis, the foregoing will so fully reveal the essence of the present
18 invention that others can, by applying current knowledge, readily adapt it for various
19 applications without omitting features that, from the standpoint of prior art, fairly
20 constitutes essential characteristics of generic or specific aspects of this invention.

21 What is claimed as new and desired to be protected by Letters Patent is set forth in the
22 appended Claims.

23